



# Massachusetts Department of Environmental Protection Source Water Assessment and Protection (SWAP) Report For **PICONICS**

## What is SWAP?

The Source Water Assessment and Protection (SWAP) program, established under the federal Safe Drinking Water Act, requires every state to:

- ? Inventory land uses within the recharge areas of all public water supply sources;
- ? Assess the susceptibility of drinking water sources to contamination from these land uses; and
- ? Publicize the results to provide support for improved protection.

## SWAP and Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Prepared by the  
Massachusetts Department of  
Environmental Protection,  
Bureau of Resource Protection,  
Drinking Water Program

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**Table 1: Public Water System (PWS) Information**

<b>PWS NAME</b>	PICONICS
<b>PWS Address</b>	25 CUMMINGS ROAD
<b>City/Town</b>	TYNGSBOROUGH, MASSACHUSETTS
<b>PWS ID Number</b>	2301019
<b>Local Contact</b>	PAUL RICHTER
<b>Phone Number</b>	(978) 649-7501

<b>Well Name</b>	<b>Source ID#</b>	<b>Zone I (in feet)</b>	<b>IWPA (in feet)</b>	<b>Source Susceptibility</b>
Well #1	2301019-01G	144	444	High

## Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential sources of contamination, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

### Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

### This report includes:

1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attachments, including a Map of the Protection Areas

## 1. Description of the Water System

The well for Piconics is located east of the on-site building, between the building and Route 3. The well has a Zone I of 144 feet and an Interim Wellhead Protection Area (IWPA) of 444 feet. The IWPA provides an interim protection area for a water supply well when the actual recharge area has not been delineated. The actual recharge area to the well may be significantly larger or smaller than the IWPA. The well is located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration. Please refer to the attached map of the Zone I and IWPA.

The well serving the facility has no treatment at this time. The water from the well is pumped to a 20-gallon hydropneumatic storage tank. From the storage tank the water passes through filter cartridges to remove particles, taste and odor. The DEP requires

### What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.
- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

### What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

public water suppliers to monitor the quality of the water. For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1.

Drinking water monitoring reporting data is also available on the web via EPA's Envirofacts website at [http://www.epa.gov/enviro/html/sdwis/sdwis\\_query.html](http://www.epa.gov/enviro/html/sdwis/sdwis_query.html).

## 2. Discussion of Land Uses in the Protection Areas

There are a number of land uses and activities within the drinking water supply protection areas that are potential sources of contamination.

#### Key issues include:

1. **Inappropriate Activities in Zone I;**
2. **Transportation Corridor;**
3. **Underground Storage Tank;**
4. **Chemical Storage;**
5. **Machine/metal working shop; and**
6. **Small Quantity Generator.**

The overall ranking of susceptibility to contamination for the well is high, based on the presence of at least one high threat land use or activity in the IWPA, as seen in Table 2.

1. **Zone I** – Currently, the well does not meet DEP's restrictions, which only allow water supply related activities in Zone I. The facility's Zone I contains the on-site building which is used for industrial purposes and parking areas. The public water supplier does not own and/or control all land encompassed by the Zone I. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying systems.

#### Recommendations:

- ✓ Remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.
  - ✓ Do not use pesticides or road salt within the Zone I.
2. **Transportation corridor** - Route 3 is located within the IWPA of the well. Interstate highways are potential sources of contamination due to salting of roadways and leaks or spills of fuels and other hazardous materials during accidents.

**Table 2: Table of Activities within the Water Supply Protection Areas**

Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Transportation Corridor	No	Yes	Moderate	Route 3
Underground Storage Tank	No	Yes	High	Fuel oil tank
Parking lot, driveways & roads	Yes	Yes	Moderate	Limit road salt usage and provide drainage away from wells
Machine/metal working shop	Yes	Yes	High	Chemical use and storage
Small Quantity Generator	Yes	Yes	Moderate	Removed by a licensed hauler
Hazardous material use & storage	No	Yes	High	Chemicals used in their every day activities.
Structures	All Wells	All Wells	-	Non-water supply structures in Zone I

\* -For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - [www.state.ma.us/dep/brp/dws/](http://www.state.ma.us/dep/brp/dws/).

## Glossary

**Zone I:** The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

**IWPA:** A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone I. To determine IWPA radius, refer to the attached map.

**Zone II:** The primary recharge area defined by a hydrogeologic study.

**Aquifer:** An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

**Hydrogeologic Barrier:** An underground layer of impermeable material that resists penetration by water.

**Recharge Area:** The surface area that contributes water to a well.

## Recommendation:

- ✓ Contact local fire department to ensure that the IWPA is included in Emergency Response Planning

**3. Small Quantity Generator/Industrial manufacturing** - The building is used for manufacturing. As a result of the daily operations at the site, small quantities of hazardous waste are generated. The waste is removed periodically by a licensed hauler. If improperly handled, or in case of leaks or spills, the chemicals used in their manufacturing processes can potentially contaminate the water supply.

## Recommendation:

- ✓ Use Best Management Practices in handling the chemicals.
- 4. Landfill** – A landfill falls within the IWPA of the well. If improperly disposed of, leachate from the landfill can leach into groundwater and potentially contaminate the water supply.
- Recommendations:**
- ✓ Notify the landfill owner that part of the facility is located in a public water supply protection area.
  - ✓ Work with the landfill owner to be sure that best management practices are used for proper handling of materials and in containing spills and leaks.

**5. Septic systems** - The septic system is located within the IWPA of the well. If a septic system fails or is not properly maintained it could be a potential source of microbial contamination. Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the water supply.

## Recommendations:

- ✓ Septic system components should be located, inspected, and maintained on a regular basis. Refer to the appendices for more information regarding septic systems.
- ✓ Train staff on proper hazardous material use, disposal, emergency response, and best management practices; include custodial staff, groundskeepers, and certified operator. Post labels as appropriate on raw materials and hazardous waste.

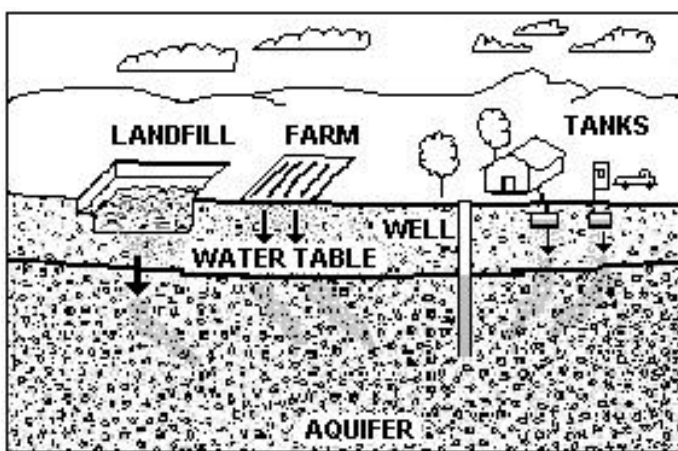


Figure 1: Example of how a well could become contaminated by different land uses and activities.

**6. Hazardous material use & storage**- Chemicals used in their every day operations are stored in a locked and properly labeled metal cabinet. If improperly handled, spills or leaks could potentially contaminate the water supply.

## Recommendation:

- ✓ Continue to use BMPs to ensure the proper handling and storage of hazardous materials.

**7. Underground Storage Tank (UST)** – A UST with heating oil is located within the IWPA. Leaks and or spill of fuel oil are a potential source of contamination to the water supply.

## Recommendation:

- ✓ Upgrade all oil/hazardous material storage tanks to incorporate proper containment and safety practices. Any modifications to the UST must be accomplished in a manner consistent with Massachusetts's plumbing, building, and fire code requirements. Consult with the local fire department for any additional local code requirements regarding USTs.

#### For More Information:

Contact **Josephine Yemoh-Ndi** in DEP's **Worcester Office** at (508) 792-7650 x4030 for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on the Drinking Water Program web site at:

[www.state.ma.us/dep/brp/dws/](http://www.state.ma.us/dep/brp/dws/)

#### Additional Documents:

To help with source protection efforts, more information is available by request or online at [www.state.ma.us/dep/brp/dws/](http://www.state.ma.us/dep/brp/dws/), including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Copies of this assessment have been made available to the public water supplier and town boards.

Implementing the following recommendations will reduce the system's susceptibility to contamination.

### 3. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will reduce the well's susceptibility to contamination. Piconics should review and adopt the key recommendations above and the following:

#### Zone I:

- ✓ Keep non-water supply activities out of the Zone I.
- ✓ Consider well relocation if Zone I threats cannot be mitigated.
- ✓ Since Piconics intends to continue utilizing the structures in the Zone I, use BMPs and restrict activities that could pose a threat to the water supply.

#### Training and Education:

- ✓ Train staff on proper hazardous material use, disposal, emergency response, and best management practices; include custodial staff, groundskeepers, and certified operator.

#### Facilities Management:

- ✓ Implement standard operating procedures regarding proper storage, use and disposal of hazardous materials. To learn more, refer to <http://www.state.ma.us/dep/bwp/dhm/files/sqgsum.pdf> for the Requirements for Small Quantity Generators.

#### Planning:

- ✓ Work with local officials in Tyngsboro to include the facility's IWPA in Aquifer Protection District Bylaws and to assist you in improving protection.
- ✓ Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.
- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a land use inventory to assist in setting priorities, focusing inspections, and creating educational activities.

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

### 4. Attachments

- Map of the Public Water Supply (PWS) Protection Area.
- Recommended Source Protection Measures Factsheet
- Your Septic System Brochure

